



January 31, 2005

Mr. Gary M. Szytel
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304 State Place
Escondido, CA 92029

COPY

Subject: Pauma Valley Airpark

Dear Gary:

This letter-report is in response to your request to investigate land use compatibility issues related to noise and safety at Pauma Valley Airpark. Specifically you asked us to address appropriate residential densities for Parcels 130-100-17 and 130-100-27 (part).

In the performance of this assignment, we have reviewed the following documents:

- California Airport Land Use Planning Handbook, State of California, Department of Transportation, Division of Aeronautics, January 2002 (referred to here as the "Handbook").
- Airport Environmental Handbook, FAA Order 5050.4A, Federal Aviation Administration, October 8, 1985.
- Guidelines for Airport Spacing and Traffic Pattern Airspace Areas, FAA Order 7480.1A, Federal Aviation Administration, August 3, 1971.
- National Transportation Safety Board database.
- AirNav.com database for Pauma Valley Airpark.
- Material furnished by you concerning the Pauma Valley Airpark and subject property, including correspondence, aerial photograph, site map, and major use permit.
- USGS topographic map for Boucher Hill, California.

We have talked to the following people during this assignment:

- Ron Bolyard, Caltrans Division of Aeronautics (916-654-7075), regarding the safety criteria in the Handbook.
- Juan Lias, San Diego County Regional Airport Authority and Airport Land Use Commission for San Diego County (619-400-2464), regarding its application of land use compatibility standards.

- Ken Brody, Mead-Hunt (707-526-5010), who was the principal consultant preparer of the Handbook and the principal consultant on the current project to update the San Diego County CLUP for all public-use airports in the County, regarding the application of land use compatibility criteria by the San Diego County Airport Land Use Commission.

ACTIVITY AT PAUMA VALLEY AIRPARK

Pauma Valley Airpark is a privately-owned and private-use airport, owned and operated by the Pauma Valley Country Club. It is available for use by club members only. Club members are seasoned pilots. No student training activity takes place on the airport. There are fewer than 10 active aircraft at Pauma Valley Airpark. On a busy weekend day, there are 5 to 6 operations. Activity is much less on weekdays. The club estimates monthly operations average 25 to 30 a month, or 300 to 360 a year.

The runway is 2,700 feet long and 50 feet wide. It is oriented in a northwest-southeast direction. About 98 percent of aircraft operations are conducted on Runway 29 (landings from the southeast and departures to the northwest). Two percent operate in the opposite direction, when necessary due to winds. The subject properties are southeast of the airport, and therefore are at the arrival end of the runway.

Land use compatibility issues deal primarily with aircraft noise, height restrictions, and safety issues. Each is discussed below.

AIRCRAFT NOISE

California noise regulations establish 65 dB community equivalent noise level (CNEL) as the noise level at and above which residential and other sensitive land uses should not be permitted. Based on the flight activity at Pauma Valley Airpark, we estimate that the noise contour lines for 65 dB CNEL would not extend beyond the end of the runway. Moreover, we expect that the lower noise threshold of 60 dB CNEL would be within the airport's Runway Protection Zone boundary (an open space area). Thus, aircraft noise does not impact land uses off-airport.

FAA's Airport Environmental Handbook states that no noise analysis for National Environmental Policy Act (NEPA) purposes is needed for proposals involving airplanes of the type at Pauma Valley Airpark where forecast operations do not exceed 90,000 annual propeller operations or 700 annual jet operations. The annual activity at the airport is a small fraction of the FAA threshold for noise analysis.

HEIGHT LIMITATIONS

Federal Aviation Regulations Part 77 provides a mechanism for controlling heights of objects around airports. Part 77 defines imaginary surfaces around airports. Any penetrations to these

surfaces could potentially affect air operations. Based on a preliminary review of topography, residential development in the subject parcels would not penetrate the Part 77 surfaces.

SAFETY

Pursuant to the California Environmental Quality Act (CEQA), the hazard associated with safety of aircraft operations relative to the subject properties has been evaluated. Aircraft accident risk was examined on the basis of statistical data and operating procedures at the airport.

Likelihood of Injury to Persons on the Ground from Off-Airport Accidents

The likelihood of injury to persons on the ground from an off-airport aircraft accident associated with Pauma Valley Airpark was determined through statistical analysis. First, the average risk of injury to persons on the ground from off-airport accidents in the U.S. was determined (see Table 1). From national data from the National Transportation Board (NTSB), it is seen that the risk to persons on the ground from an off-airport accident is about 0.03 fatalities per million operations and 0.02 serious injuries per million operations.

Table 1
General Aviation Aircraft Accident
Statistics for the U.S., 1998 and 2000 [a]

Risk Factor	1998	2000	Average
Off-Airport Injuries to Persons on Ground			
Fatal	3	0	1.5
Serious	0	2	1
Estimated Operations [b]	51,040,000	55,680,000	53,360,000
Average Off-Airport Injuries to Persons on Ground per Million Operations			
Fatal	--	--	0.028
Serious	--	--	0.019

[a] Source: National Transportation Safety Board data.

[b] Estimated at two operations per flying hour.

Next, the risk rates were applied to the activity at Pauma Valley Airpark (see Table 2). Based on 360 operations a year, the risk of a fatality of a person on the ground from an aircraft accident associated with Pauma Valley Airpark is approximately one in 100,000 years. The risk of a serious injury to a person on the ground from an aircraft accident associated with Pauma Valley Airpark is approximately 0.7 in 100,000 years.

These risks are for any accident, regardless of location, related to the airport. Thus, the risk of such an accident occurring on any given property is significantly less. This level of risk is judged to be acceptable, particularly given the open space proposed at the southeast end of the runway, the relation of the subject property to the aircraft traffic pattern, and the density of development proposed. These considerations are described below.

Table 2
General Aviation Aircraft Accident
Risk Applicable to Pauma Valley Airpark

Risk Factor	Risk
Average Off-Airport Injuries to Persons on Ground per Million Operations [a]	
Fatal	0.028
Serious	0.019
Estimated Annual Operations at Pauma Valley Airpark	360
Risk of Off-Airport Injuries to Persons on Ground Around Pauma Valley Airpark	
Fatal	1.0 in 100,000 years
Serious	0.7 in 100,000 years

[a] U.S. average.

Proposed Open Space at the Southeast End of the Airport

An open space is proposed southeast of the airport along the aircraft approach corridor. Private parcels that would be dedicated to open space would include all of Parcel 130-100-26 and a large part of Parcel 130-100-27 (see Figure 1). The open space zone is 1,800 feet long, measured from the end of the runway along the runway centerline, and is 500 to 700 feet wide. This open space provides a large safety zone in the area of greatest risk of an off-airport accident.

All of the Runway 29 Runway Protection Zone (RPZ) is contained within this open space zone. FAA and State guidelines prohibit residential development within the RPZ.

The Pauma Valley Country Club provides additional open space in the approach corridor.

Airport Traffic Pattern

Runway 29 is the primary landing runway (landings from the southeast). The standard traffic pattern for landings on that runway is a “downwind” leg to the southeast parallel to the runway about $\frac{3}{4}$ mile from the runway, turning to 90 degrees from the runway when about $\frac{3}{4}$ mile from the end of the runway (the “base” leg), and an approach toward the runway from about $\frac{3}{4}$ mile from the end of the runway (see Figure 1). This approach avoids rising terrain in the area and provides an adequate distance on final approach.

This approach does not overfly the subject property.

Departures on Runway 11 (to the southeast) could overfly Parcel 130-100-17, but operations in this direction are estimated by the club to be only about two percent a year – on the order of no more than seven a year.

PROPOSED LAND USE DENSITIES AT THE EAST END OF THE AIRPORT

The following development densities are proposed:

- One dwelling unit per acre for Parcel 130-100-17. The traffic pattern for approaches to the airport comes no closer than 500 feet to the nearest part of this parcel.
- Four dwelling units per acre for the undeveloped portion of Parcel 130-100-27 that lies southwest of the proposed open space corridor. This parcel is not subject to over-flights because the traffic pattern for operations in both directions is on the northeast side of the runway (i.e., all aircraft arriving at or departing the airport operate from the northeast side of the runway).

Based on the analysis described above, these development densities are well within acceptable risk levels for aircraft accidents off-airport.

COMPARISON WITH HANDBOOK ZONES AND DENSITIES

Handbook Criteria for Low Activity Airports

The Handbook recognizes that very low activity airports call for safety criteria that are different from the standard Handbook ones. The Handbook states:

“The other operational variable which calls for adjustment of the compatibility zones is for runways where activity levels are currently very low and are forecast to remain that way indefinitely. Clearly the likelihood of an aircraft accident happening is reduced when operational volumes remain low. As suggested previously, this reduced risk could be reflected in compatibility policies either by adjusting the safety zones or by modifying the compatibility criteria.” (Handbook, page 9-43)

Thus the Handbook provides for adjusting the safety zones or compatibility criteria (land use densities) for very low activity airports like Pauma Valley Airpark. However, the “low activity” example given in the Handbook (Example 5 on page 9-39) does not adjust safety zone sizes or land use density criteria. It only eliminates Zone 6, the traffic pattern zone; no other zone changes are made. The text on page 9-43 of the Handbook suggests that for very low activity airports, Example 5 and the standard density guidelines may not apply.

For comparative purposes, however, the following discussion compares the proposed densities in the subject parcels with the criteria that would apply if Example 5 were followed.

Parcel 130-100-17

If the low activity general aviation runway criteria (Example 5 on page 9-39) were applied, about 35 percent of Parcel 17 would be in Zone 3, the inner turning zone, and 65 percent would not be in any safety zone. The Handbook suggests the following densities for these areas, using the rural/suburban criteria:

- Zone 3 (35% of parcel): 1 dwelling unit per 2-5 acres
- No safety zone (65% of parcel): no limit on residential density

An average density of one dwelling unit per acre provides a modest development density that represents a reasonable limit on risk to residents. The number of dwelling units proposed would be less than would be allowed under the standard Example 5 Handbook guidelines assuming ½ dwelling unit per acre on 35 percent of the property and 2 units per acre on the remaining 65 percent.

Parcel 130-100-27

If the low activity general aviation runway criteria (Example 5 on page 9-39) were applied, about 70 percent of Parcel 27 would be in Zone 2, the inner approach/departure zone, and 30 percent



would not be in any safety zone. There would be no Inner Turning Zone on this side of the runway because the traffic pattern is on the northeast side of the runway only. The Handbook suggests the following densities for these areas, using the rural/suburban criteria:

- Zone 2 (70% of parcel): 1 dwelling unit per 10-20 acres
- No safety zone (30% of parcel): no limit on residential density

An average density of four dwelling unit per acre provides a modest development density that represents a reasonable limit on risk to residents, considering the fact that no airplanes overfly this parcel approaching or departing the airport. An option to further reduce risk would be to have a higher density than four units per acre in the area farthest from the extended runway centerline (the area not in any zone under the Handbook criteria) and a lower density in the remainder, averaging four units per acre.

SUMMARY

In summary, this letter-report has shown that the proposed residential densities of the subject parcels represent an insignificant and acceptable level of risk to potential residents for the following reasons:

- Because the private airport is open only to club members, there is an unusually high level of experience of pilots using the airport, and their airplanes are well maintained.
- The amount of flying activity at the airport is very light, only 300 to 360 operations a year, and is expected to remain at a very low level indefinitely.
- The risk of injury or fatality of persons on the ground from an off-airport accident associated with Pauma Valley Airpark is insignificantly small, as determined from national accident statistics, especially considering the small amount of aircraft operations at the airport.
- An open space corridor, 1,800 feet long measured from the end of the runway along the runway centerline and 500 to 700 feet wide, is proposed in the runway approach area.
- The airport traffic pattern for landings from the southeast (98 percent of operations) does not overfly the subject parcels.

Furthermore, the Handbook allows for modifications to its standard zones and densities for cases private, very low activity airports like Pauma Valley Airpark.

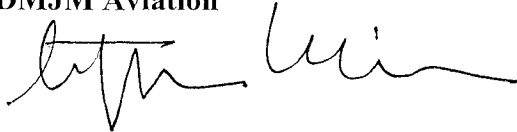
While this analysis concludes that impacts of noise and safety will be insignificant, there is always the possibility of complaints from an airport neighbor. It would be prudent to fully disclose the location of the airport to prospective homeowners and include avigation easements

for noise and over-flight for the properties, and have the easements recorded in property deeds. This may mitigate potential controversy in the future.

Homeowners should also understand that their proximity to the airport will restrict them from erecting tall structures such as antennas. Such restrictions should be stated in by-laws or CC&Rs that may be applicable to the development.

Sincerely,

DMJM Aviation

A handwritten signature in black ink, appearing to read 'Steve Allison', written over the company name.

Steve Allison
Senior Project Manager